



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/538,634

06/10/2005

Yasuhito Yuasa

10873.1715USWO

8960

53148

7590

09/19/2008

HAMRE, SCHUMANN, MUELLER & LARSON P.C.

P.O. BOX 2902-0902

MINNEAPOLIS, MN 55402

EXAMINER

RODEE, CHRISTOPHER D

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

09/19/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|---|--|
| Office Action Summary | Application No. 10/538,634 | Applicant(s) YUASA, YASUHIITO | |
| | Examiner Christopher RoDee | Art Unit 1795 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 August 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-12 and 14-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-12 and 14-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1795

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 19 August 2008 has been entered.

Election/Restrictions

Non-elected claims 25-27 have been canceled.

Claim Objections

Claims 8 and 19 are objected to because of the following informalities: claims 8 and 19 recite the maximum molecular weight peaks of the wax as 5×10^2 to 1×10^4 . It appears these values should be subscripted (e.g., 10^2). Appropriate correction is required.

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 3, and 6 are rejected under 35 U.S.C. 102(e) as being anticipated by Sugiura *et al.* in US Patent Application Publication 2003/0152857.

Art Unit: 1795

Sugiura was discussed in the prior Office actions as disclosing a toner particle comprising a binder resin, a colorant, and a wax (Abstract; ¶ [0220] – [0224]). As seen in Example B-9, a 40 nm external additive silica with dimethyl silicone oil and zinc stearate (¶ [0543]). Dimethyl silicone oil is a polysiloxane oil, which is provided to make the silica particles hydrophobic (see ¶¶ [0206] & [0207]). The reference specifically teaches that the oil is added to produce “silicone oil-treated fine particles (¶ [0206]). The toner is combined with a carrier coated with a silicone resin and an aminosilane (¶ [0499]). Other silicone oils include methylphenyl silicone oil and methyl hydrogen silicone oil (¶ [0207]).

In the recent response, applicants take the position that zinc stearate particles are simply added to and mixed with silica in the silicone oil (response of 22 July 2008, p. 10). The silica and the silicone oil would be in the form of separate particles and the adhesion between the silica and zinc stearate and between the silica and silicone oil is not strong. Applicants note that in the examples of the specification the polysiloxane and fatty acid salt coat the surface of the inorganic powder.

The Examiner has carefully considered applicants’ remarks and has reviewed the reference and pending claims in detail. A review of Sugiura shows that the silicone-oil is added to treat the fine silica particles (¶ [0206]) and render them hydrophobic. In Example B-9 the silica and the zinc stearate are disclosed as being added to the silica at the same time and mixed with the silica under the same conditions (¶ [0543]). From this disclosure and the teaching that the silicone oil treats the silica, it appears that the zinc stearate also treats the silica. The instant claims permit silica as the fatty acid derivative in option (4) of the amended independent claims.

The instant claims do not specify how the polysiloxane and the fatty acid or derivative treat the silica. The claims are not limited to a coating of the polysiloxane and fatty acid or

Art Unit: 1795

derivative on the silica surface as discussed in the response. Based on the disclosure that the silicone oil and metal fatty acid materials are mixed with silica, they are seen as contacting the silica sufficiently to treat the silica. Even if the zinc stearate is still present in the form of particles in the toner composition, the mixing of the stearate and silica is sufficient to treat the silica with the stearate to some extent. For example, any residual amount of the stearate on the silica meets the requirements of the claims. If applicants continue to take the position that stearate and silica do not interact at all during mixing, they are asked to provide evidence in response to this Office action to establish this position factually.

The rejection is still seen as proper, particularly for the claims as now presented.

Claim Rejections - 35 USC § 103

Claims 12, 14, 17, 23, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugiura *et al.* in US Patent Application Publication 2003/0152857 in view of Kobayashi *et al.* in US Patent Application Publication 2003/0091923.

Sugiura was discussed above and that discussion is incorporated here. The reference discloses a carrier coated with a silicone resin and an aminosilane but does not disclose the specific carrier having a fluorine modified silicone resin and an aminosilane in the carrier coating layer.

Kobayashi discloses a carrier having a core with a coating resin layer on its surface to give an exposed area of 2 to 20% (Abstract; ¶ [0025]). The coating resin layer contains an aminosilane in an amount of from 2 to 60 weight percent based on the solids content of the coating and a silicone, such as an organic silicone resin and a fluorine-modified silicone resin (¶¶ [0029] – [0033]). As seen in the general formula, halogen groups (e.g., the specified fluorine) are present on the crosslinked silicone (¶ [0033]). The exemplified carrier of Example

Art Unit: 1795

3 contains 23.1 weight percent of aminosilane based on the solids content (i.e., $36/(36+120)$).

The coating resin layer also contains conductive particles in an amount of 0.5 to 6 weight percent (¶ [0027]; Example 3). The coating resin composition of the carrier provides a layer that does not readily fall off, wear, or fuse (¶ [0029]).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the carrier of Kobayashi as the carrier in the invention of Sugiura because Sugiura teaches that a carrier having a coating of a silicone resin and an aminosilane is desirable and the supporting Kobayashi reference discloses a specific carrier having the same types of carrier coating materials that gives good image density over various environmental characteristics (¶ [0025]). Fluorine-modified silicone resins are specifically disclosed as useful on the carrier with the aminosilane compound as the coating layer.

Applicants traverse this rejection for the same reasons as given above for Sugiura alone. Because Kobayashi is directed to the carrier and not the toner the reasons provided for traversal for Sugiura are seen as effective for this rejection.

As noted above, Sugiura is seen as reasonably disclosing the toner of the instant claims. Lacking any further ground of traversal, the rejection is maintained.

Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugiura *et al.* in US Patent Application Publication 2003/0152857 in view of "Technical Information TI 1222, Special hydrophobic AEROSIL® (SHA) for Toners", Nippon Aerosil, p. 5.

Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugiura *et al.* in US Patent Application Publication 2003/0152857 in view of by Kobayashi *et al.* in US Patent Application Publication 2003/0091923 in view of "Technical Information TI 1222, Special hydrophobic AEROSIL® (SHA) for Toners", Nippon Aerosil, p. 5.

Art Unit: 1795

Sugiura alone and in view of Kobayahi were discussed above. The references do not identically disclose the combination of the above noted additive in combination with a negatively chargeable silica powder with a particle size of 6 to 30 nm, Sugiura does disclose that the toner may have additional additives with a size of from 1 to 100 nm or a mixture of additives having sizes of from 20 nm or less and 30 nm or more (§ [0203]). Disclosed additives include R972, R974, RY200, and RX200, which are all identified in the Technical Information sheet as negatively charging additives.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to select one of the R972, R974, RY200, and RX200 or any negatively charging silica as the additive silica in Sugiura because Sugiura teaches each of these additives as effective and the supporting art discloses these treated silicas as negatively charging. The artisan would, from the totality of the disclosure, choose a negatively charging silica within the disclosure size range, such as at 20 nm or 30 nm because each of these sizes is disclosed as effective by the reference.

Applicants traverse this rejection for the same reasons as given above for Sugiura alone noting the supporting reference does not provide alleged deficiencies concerning treatment of the silica by a fatty acid or derivative. Sugiura is seen as reasonably disclosing the toner of the instant claims. Lacking any further ground of traversal, the rejection is maintained.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sugiura *et al.* in US Patent Application Publication 2003/0152857 in view of Tyagi *et al.* in US Patent 6,156,473.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sugiura *et al.* in US Patent Application Publication 2003/0152857 in view of by Kobayashi *et al.* in US Patent Application Publication 2003/0091923 further in view of Tyagi *et al.* in US Patent 6,156,473.

Art Unit: 1795

Sugiura alone and in view of Kobayahi were discussed above. The references do not identically disclose the wax of the above rejected dependent claims, but Sugiura discloses that a wax release agent is usefully included in the toner.

Tyagi discloses an aliphatic amide release agent in toner compositions that have improved release properties and abrasion resistance (col. 2, l. 60-62), particularly when used with heated fuser rollers (col. 3, l. 51-59). Particularly effective amides include oleamide, stearamide, and erucamide, and alkylene bis fatty acid amides as disclosed (col. 5, l. 5-26; spec. p. 31, l. 2 – p. 32, l. 16).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the release agent of Tyagi in the invention of Sugiura as the release agent because Sugiura teaches that a release agent is effective to produce off set resistance and Tyagi discloses a specific release agent that is effective to prevent offset, particularly during roller fusing. The benefits are predictable and the substitution of this one release agent for those specifically disclosed in Sugiura is well within the level of skill in the art.

Applicants traverse this rejection for the same reasons as given above for Sugiura alone or with Kobayashi noting Tyagi does not provide alleged deficiencies concerning treatment of the silica by a fatty acid or derivative. Sugiura is seen as reasonably disclosing the toner of the instant claims. Lacking any further ground of traversal, the rejection is maintained.

Claims 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugiura *et al.* in US Patent Application Publication 2003/0152857 in view of Yuasa *et al.* in US Patent Application Publication 2002/0086229.

Claims 18-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugiura *et al.* in US Patent Application Publication 2003/0152857 in view of by Kobayashi *et al.* in US

Art Unit: 1795

Patent Application Publication 2003/0091923 in view of Yuasa *et al.* in US Patent Application Publication 2002/0086229.

Sugiura alone and in view of Kobayahi were discussed above. The references do not identically disclose the claimed waxes, but Sugiura discloses that a wax release agent is usefully included in the toner.

Yuasa teaches that a toner usefully includes a wax additive, such as an ester based wax having an iodine value of not more than 25, a melting point of 50 to 100 °C, and a saponification value of 30 to 300, combined with another wax (¶ [0096] & Abstract). The additional wax is a hydroxystearate derivative (¶ [0100] & [0101]). The wax also may be formed by reaction of a long chain fatty acid and ammonium to form an amide (¶¶ [0114] – [0119]). The molecular weight characteristics of the additives are given in ¶ [0124].

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the wax additive of Yuasa in the invention of Sugiura as the release agent because Sugiura teaches that a release agent is effective to produce off set resistance and Yuasa discloses a specific additive that gives good fixability and reduced offset (¶ [0087]). The artisan would also have found it obvious to minimize the amount of residual moisture in the silica of Sugiura because this would reduce environmental variation caused the moisture in the silica. Thus the artisan would have found it obvious to minimize the ignition loss as he/she reduced the amount of residual moisture in the silica additive.

Applicants traverse this rejection for the same reasons as given above for Sugiura alone or with Kobayashi noting Yuasa does not provide alleged deficiencies concerning treatment of the silica by a fatty acid or derivative. Sugiura is seen as reasonably disclosing the toner of the instant claims. Lacking any further ground of traversal, the rejection is maintained.

Art Unit: 1795

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Those rejections not repeated are overcome because of applicants' amendments.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher RoDee whose telephone number is 571-272-1388. The examiner can normally be reached on Monday to Thursday from 5:30 to 4:00 Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Christopher RoDee/
Primary Examiner
Art Unit 1795

20 September 2008